



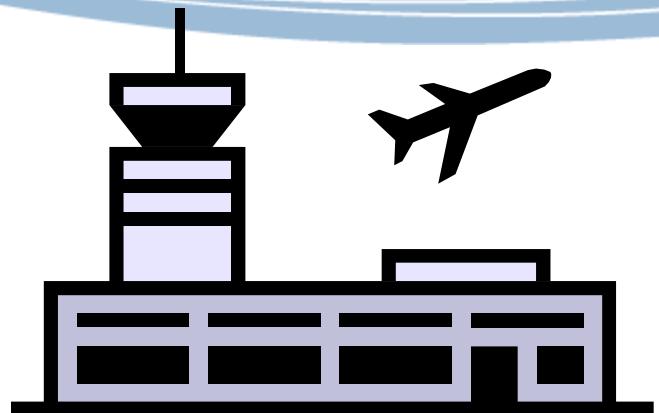
**Enabling End Users to see Real Time Price
Signals and Manage their Own Electricity Costs
via the
PJM Demand Side Response Program**

***Demand Energy Support Center
Worldwide Energy Conference
September 29, 2004***

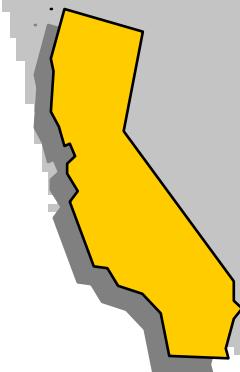
Joe Polidoro, Sr. Engineer
PJM Interconnection, LLC
610-666-4693

Market Overview

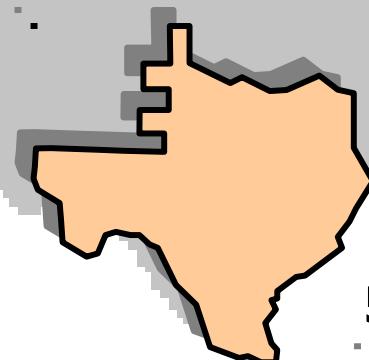
- Maintain the safety, adequacy, reliability and security of the power system
- Create and operate a robust, competitive, and non-discriminatory wholesale electric power market



**PJM is currently the
largest
centrally dispatched Entity
in North America**

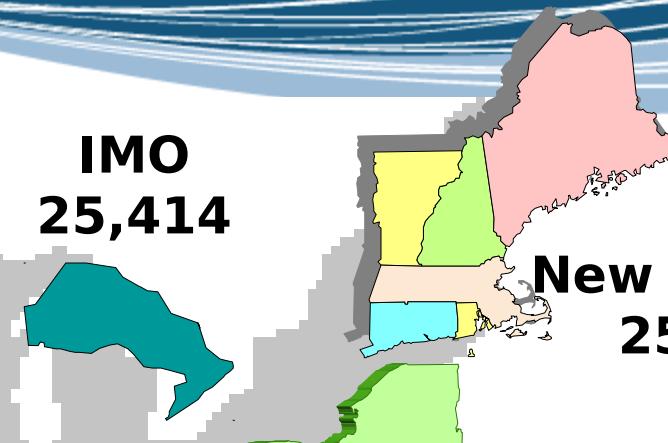


California
45,900

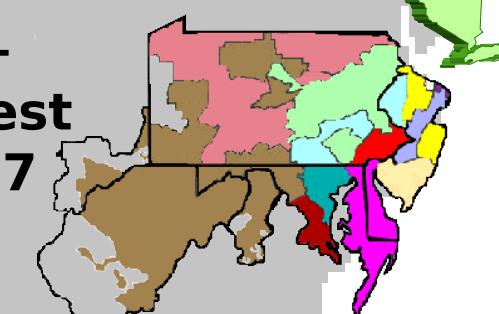


ERCOT
57,000

IMO
25,414

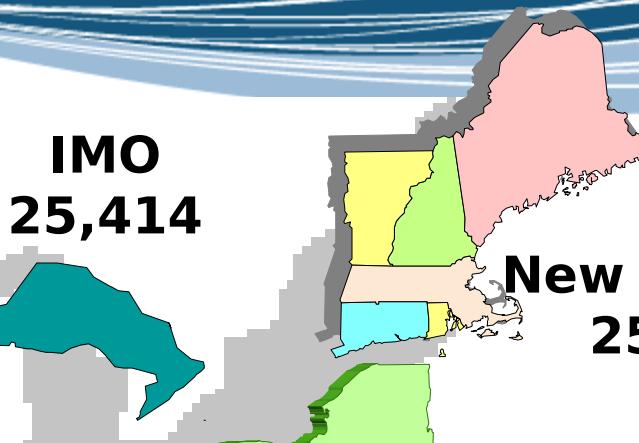


New England
25,158

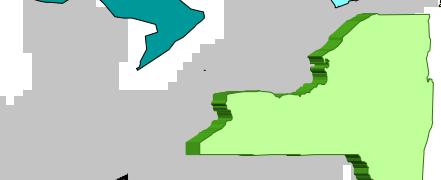


**PJM +
PJM West**
63,777

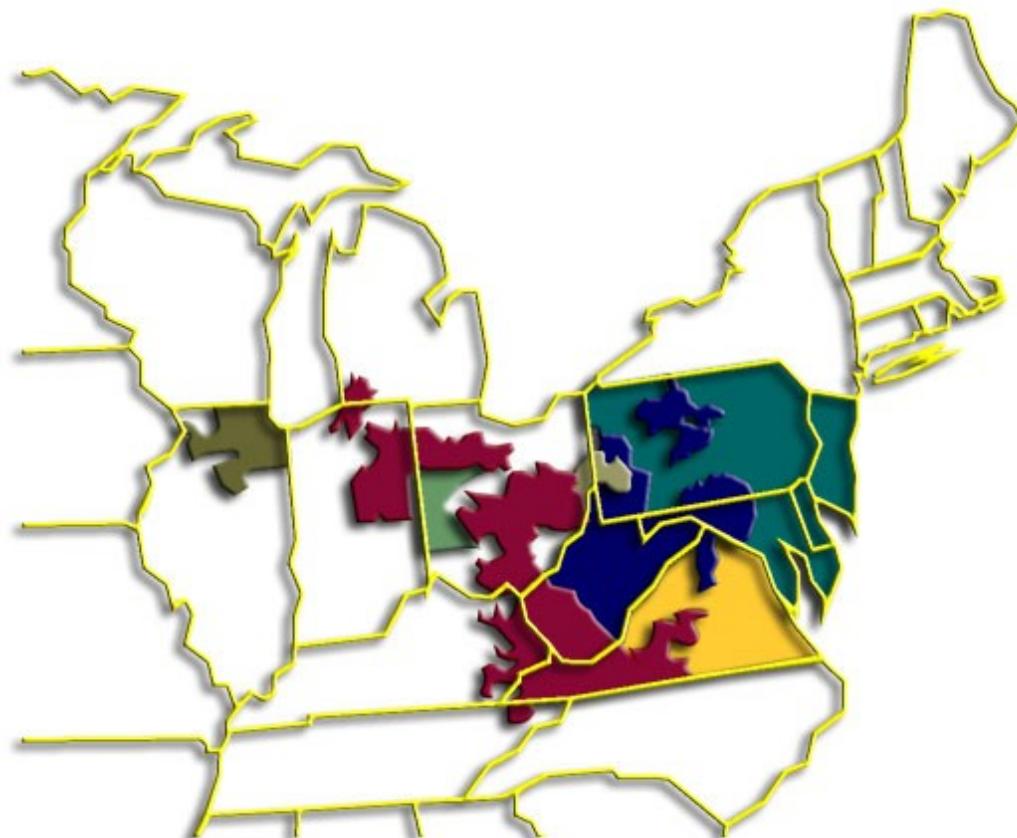
New York
30,983



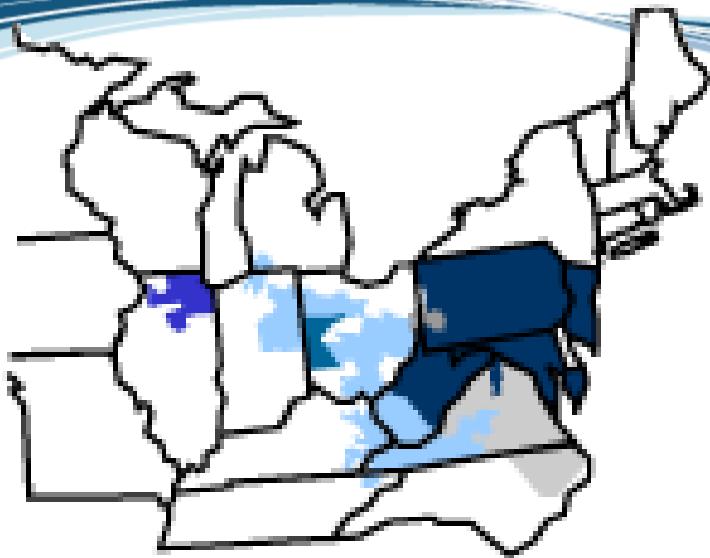
IMO
25,414



IMO
25,414



- PJM
- PJM Western Region
- Duquesne - Jan '05
- AEP - Oct '04
- Dayton Power & Light - Oct '04
- ComEd - May '04
- Dominion Power - Nov '04



PJM - Full Service RTO

- Control Area Operator
- Transmission Provider
- Market Administrator
- Regional Transmission Plan
- NERC Reliability Coordinator

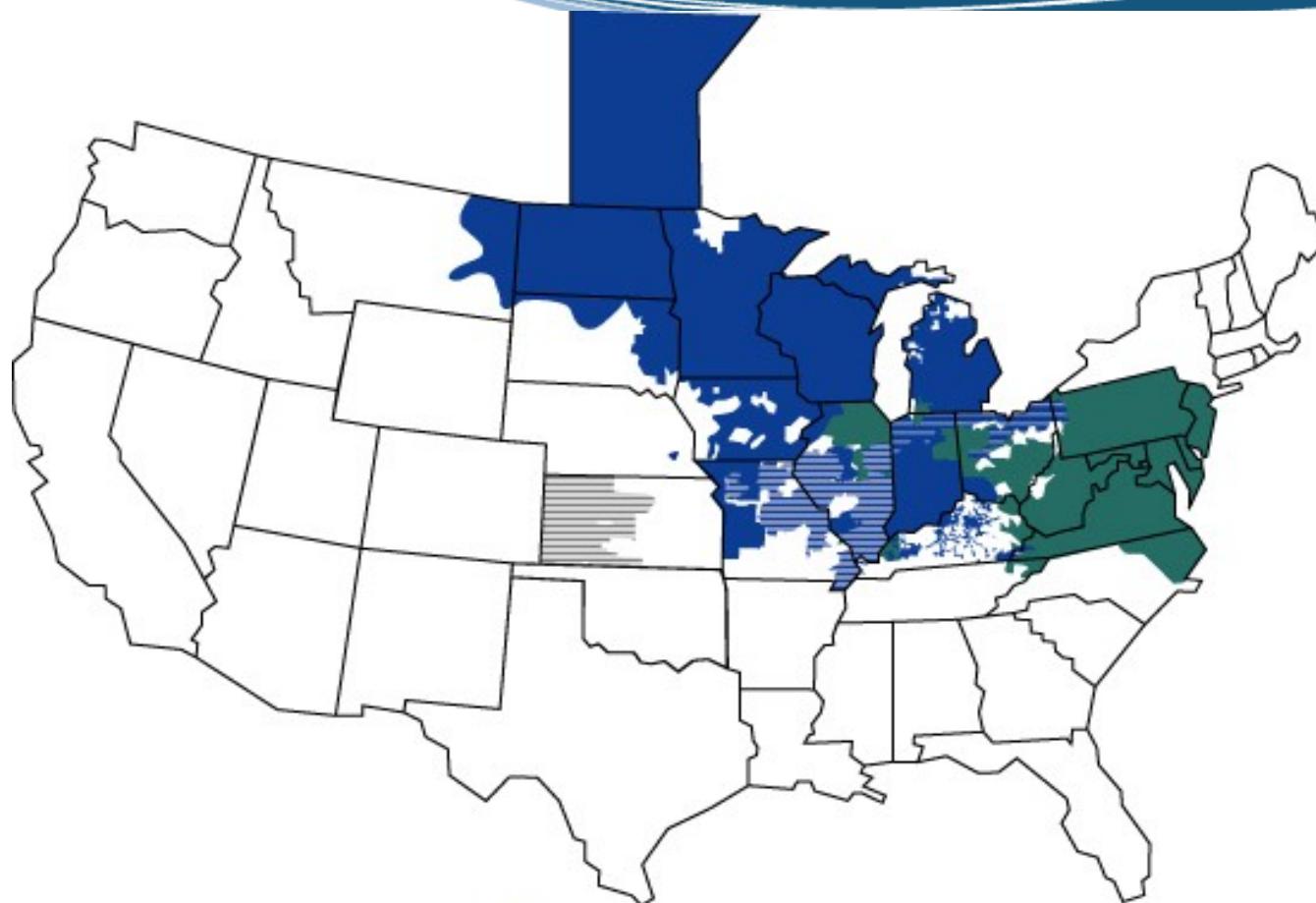
PJM RTO (Post-integrations)

Generating Units 1,166
Generation Capacity 165,132 MW
Peak Load 134,500 MW
Annual Energy 678,500 GWh
Transmission Miles 55,703
Area (Square Miles) 186,800

Customers 21.5 Million
Population Served
States (+ D.C.) 12 states + D.C.

35-

PJM – MISO Common Market Area



- Midwest ISO, Current Operations
- GridAmerica (FirstEnergy and NIPSCO)
- Ameren (Operations in GridAmerica pending state approval)
- Services Pending

- PJM Service Territory

Key benefits to wholesale customers.

- PJM spot market construct
 - Greater access to additional sources of energy and capacity - diversity
 - Full price transparency
 - Improves trading and negotiating options – liquidity
- Enhanced Reliability – increased access and efficient use of transmission system
- Market based re-dispatch to manage congestion
- Reliability managed by PJM as an independent organization
- Elimination of pancaked rates and reduction of “seams”

Key benefits to wholesale customers.

- Coordinated calculation of Available Transfer Capability (ATC) ensures maximum transmission system utilization in a reliable manner
- Independent market monitor
- Elimination of rate pancaking for transmission customers;
 - Reduces costs
 - Increases import options
- Independent regional planning process

Market Integration Timeline

5/04 6/04 7/04 8/04 9/04 10/0 11/0 1/05

4

4

★ **ComEd Integration Complete**

★ **FERC Filings (if required) - AEP/Dayton/Dominion**

**Integration
Testing**

★ —————★

FTR Selection Process

————★

**Participant Data
Integration**

★ —————★

Market Trials

★ —————★

AEP / Dayton Integration Complete

★

Dominion Integration Complete

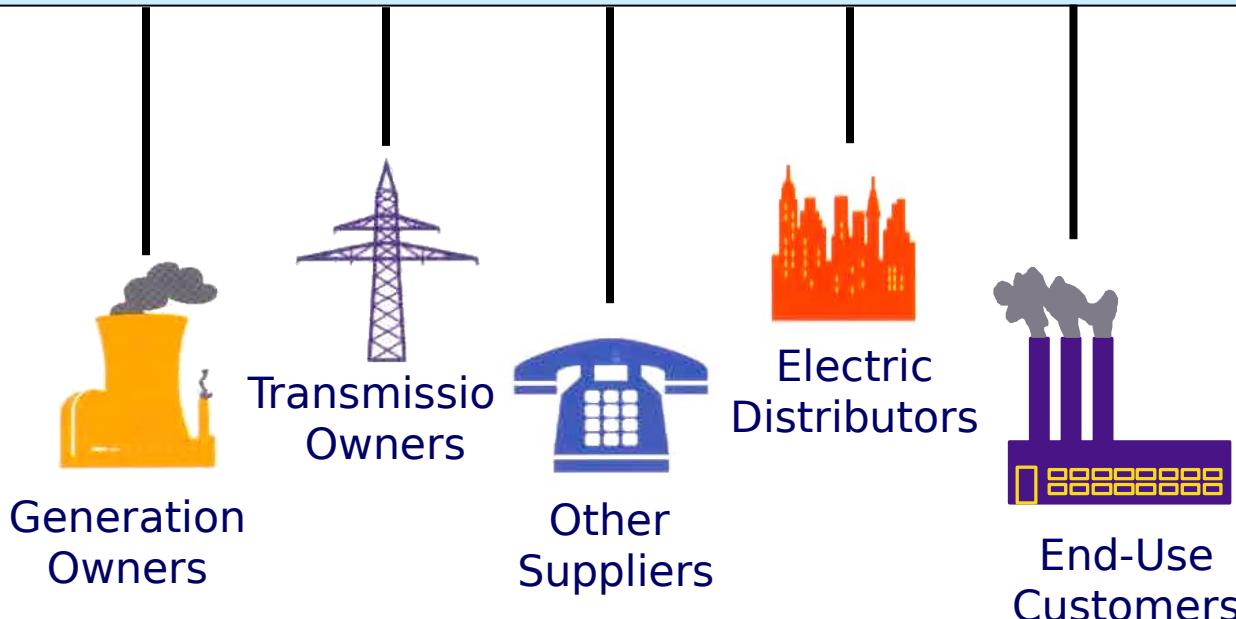
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Duquesne Integration Complete

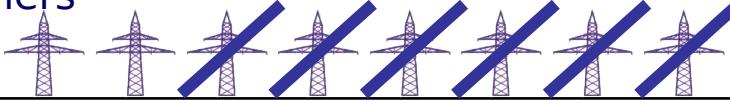
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Independent Board

Members Committee



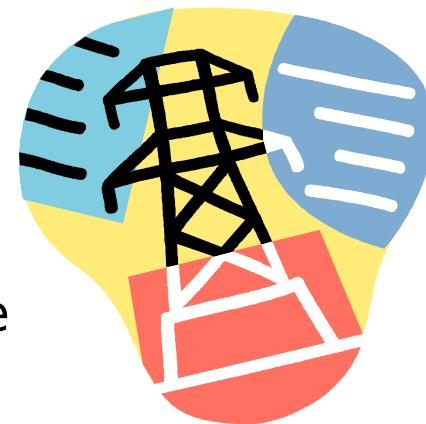
Members Committee Voting Protocol

Generation Owners		5/7	0.71
Transmission Owners		2/8	0.25
Other Supplier		21/23	0.91
End Use Customers		5/5	1.00
Electric Distributors		3/5	0.60
Required to pass = 0.667 Number of Sectors = 5		3.47	<input checked="" type="checkbox"/>
Required Affirmative = $5 \times 0.667 = 3.335$			

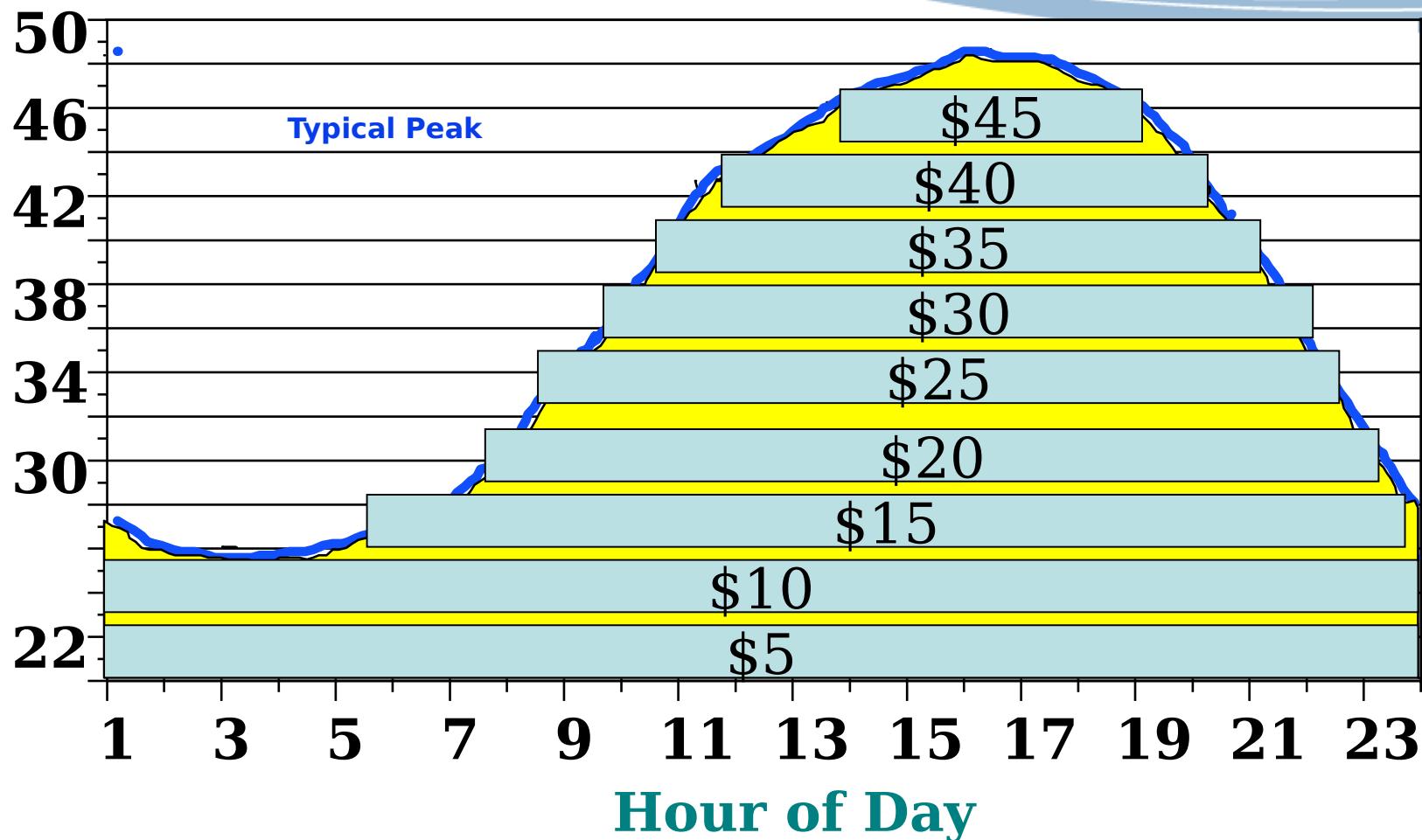
PJM Demand Side Response Programs

How Demand Response Interacts with the Market?

- A working demand response program puts downward pressure on price.
- It is an alternative to generating more electricity.
- When wholesale prices are high, Demand response can stabilize prices by reducing demand. When electricity supplies are short, demand response reduces stress on the grid.
- 4,600+ Large Industrial and Commercial participants.
- 45,000+ small commercial and residential end users in the program.

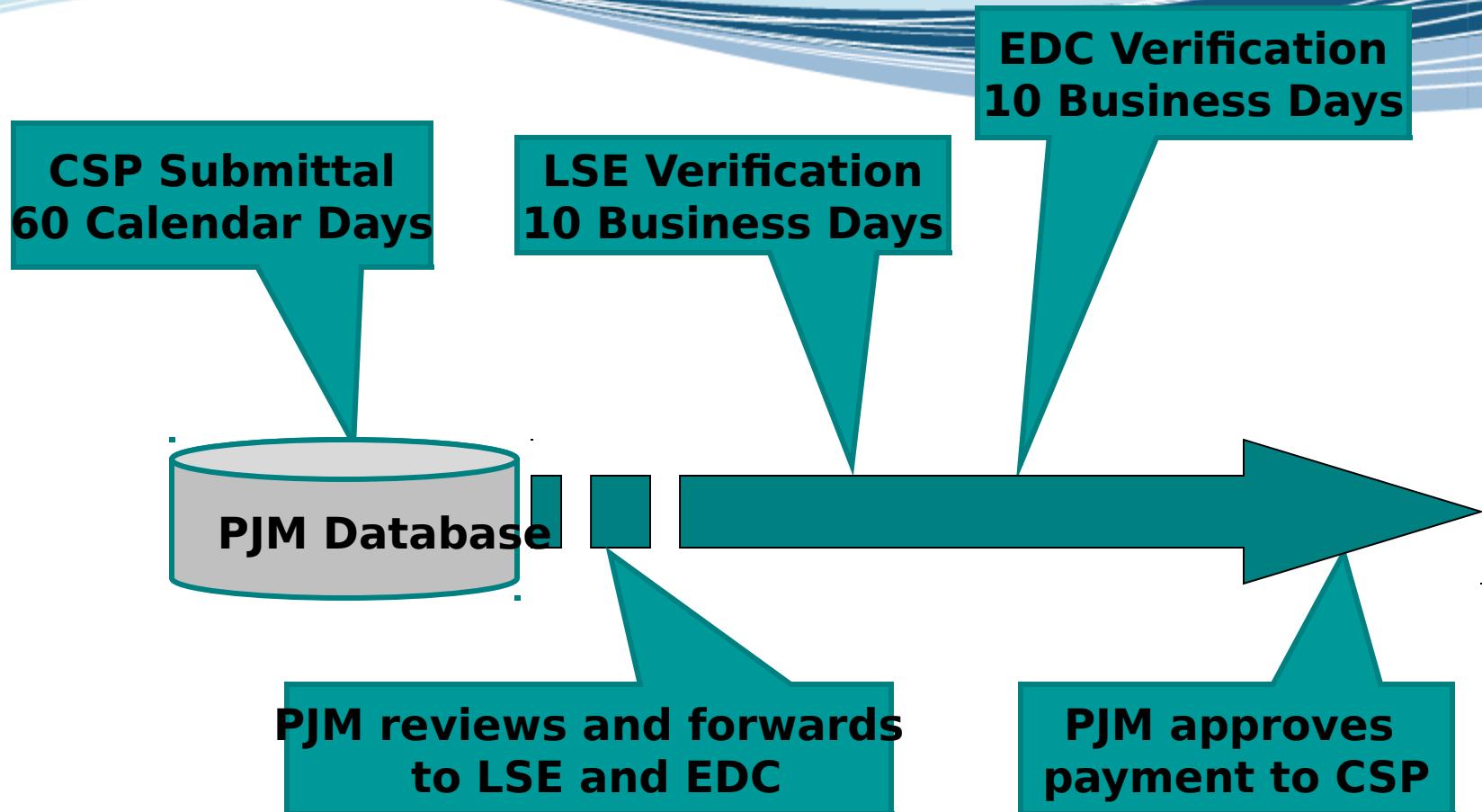


How is a
CSP paid
for shifting or reducing usage



What Program Is Right For Me?

Program Name		Emergency	Economic-Real-Time
Frequency	I can respond frequently. Notify me when prices are high	/	/
	I can respond infrequently. Only notify me when the lights are in danger of going out	/	
Risk	I want a 100% voluntary program with no risk and no penalties	/	/
Implementation	I want to use my emergency generators and I have the proper permits.	/	/
	I will only reduce load if I'm paid a minimum of \$0.50/kW	/	(Request to be dispatched at \$0.50/kW or higher)
Registration	Industrial and Large Commercial (> 100 kW)	/	/
	Residential or Small Commercial Pilot Program (< 100 kW)	/	/





Where to obtain the current pricing information?

PJM eData Services - Microsoft Internet Explorer provided by PJM Interconnection LLC

PJM HOME eData Services

Thursday March 06, 2003 - 14:40 EST
Current PJM RTD Load: 43,089MW

Fran Barrett
610-666-8888

MY eData PREFERENCES
Lynn3 Load Response West
Lynn2 Lynn1
Load Response - East

MY eData CONSTRAINTS
ENERGY CONTRACTS ACTIVITY LOG
eSuite ANNOUNCEMENTS
IRC REPORT

Forecast Last Updated - Thursday March 06, 2003 - 14:15 EST

48000
46000
44000
42000
40000
38000
36000
34000
32000
30000
00 02 04 06 08 10 12 14 16 18 20 22 00
Forecasted Instantaneous Day Ahead Demand

2000
1800
1600
1400
1200
1000
04 05 06 07 08 09 10 11 12 13 14 15 16
Megawatts

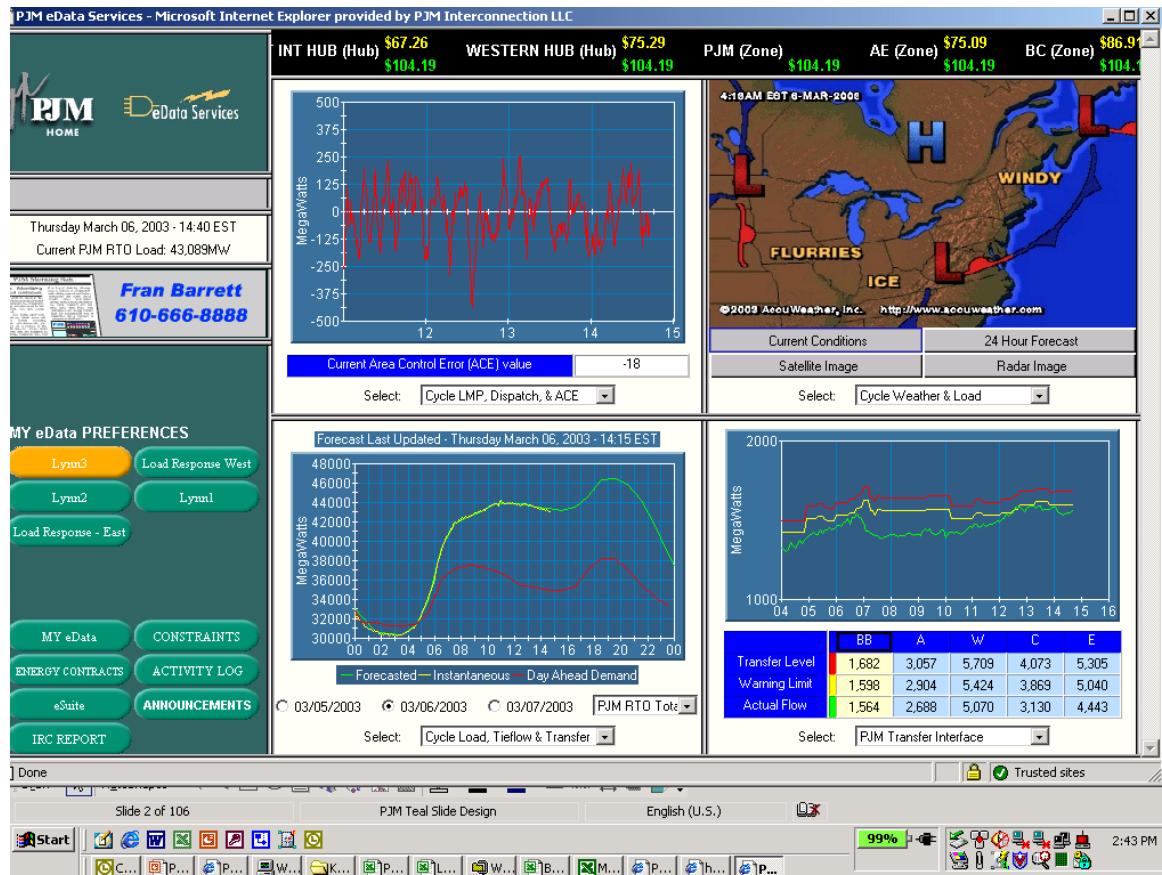
Transfer Level
Warning Limit
Actual Flow

BB	A	W	C	E
1,682	3,057	5,709	4,073	5,305
1,598	2,904	5,424	3,869	5,040
1,564	2,688	5,070	3,130	4,443

03/05/2003 03/06/2003 03/07/2003 PJM RTD Total
Select: Cycle Load, Tieflow & Transfer
Select: PJM Transfer Interface
Done

Slide 2 of 106 PJM Teal Slide Design English (U.S.) 99% 2:43 PM

Start C... P... P... W... K... P... L... W... B... M... P... h... P...

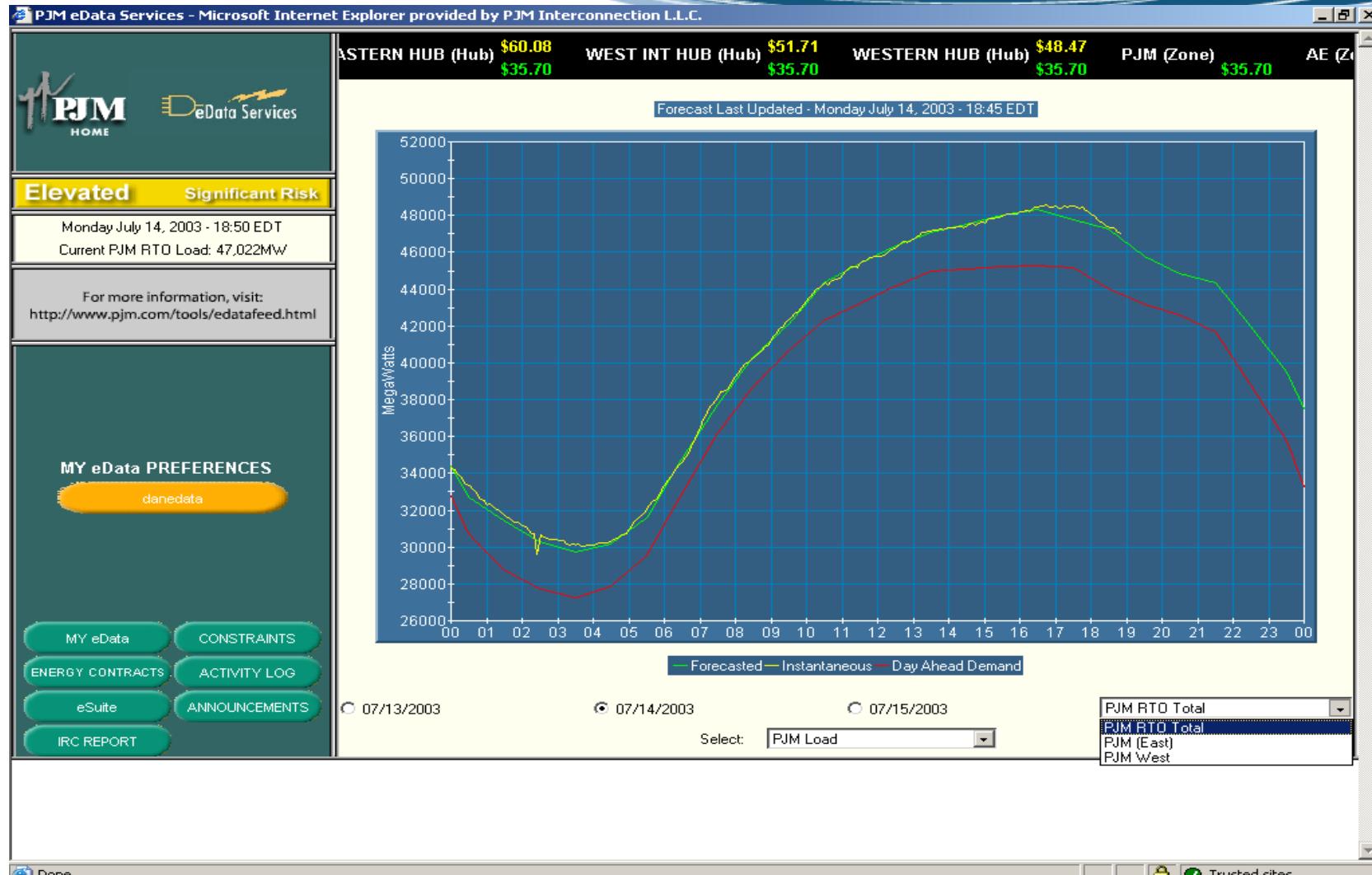


eData

Non-PJM members should register under the company name "Other"

<https://esuite.pjm.com/mui/index.htm>

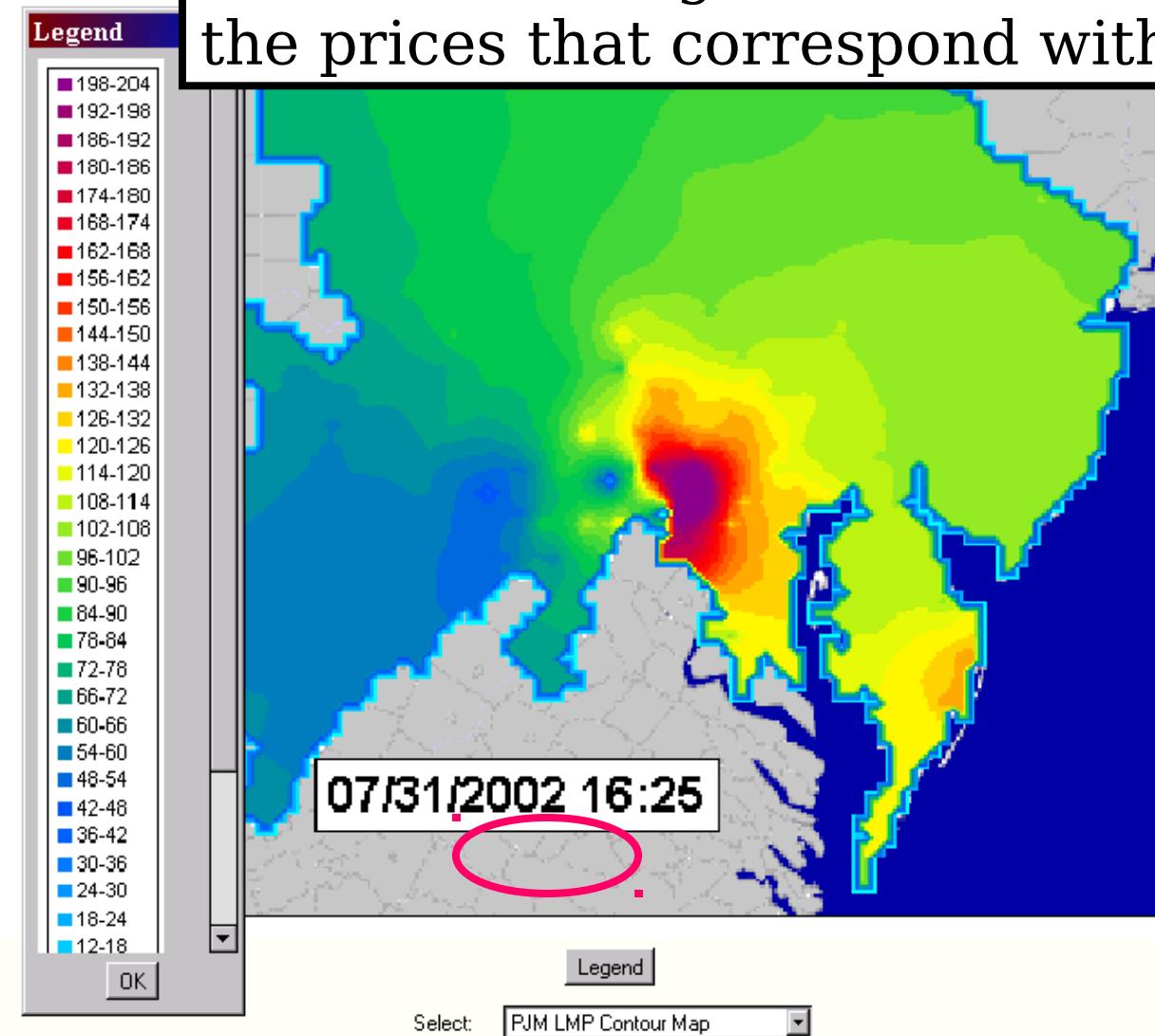
IT'S FREE!



HUB (Hub)	\$27.01	Current Load	38,370MW	Min Dispatch	\$48.24	Max Dispatch	\$74.80	Area Control Error	99M
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- Ticker can display Day-Ahead (top-yellow) and Real-Time prices (bottom-green), load, min and max dispatch rates and Ace.
- Double click on the ticker to spawn this mini-ticker outside of the main eData window.

Click on the “legend” and it will show you the prices that correspond with the colors.



1. What is the cost to join?
2. Can I participate in multiple programs at the same time?
3. Can I enroll in the program with a party other than the company that I am purchasing electricity from?
4. Will my utility get mad if I enroll in the program?
5. Can I become my own CSP?
6. What are the metering requirements?
7. Are there any hidden costs?

The Demand Side Working Group's mission is to identify and promote opportunities for demand-side resources to participate in the PJM markets, and to recommend adoption of Protocols and Protocols revisions that foster optimum load participation in all markets.

Why Is Your Participation Important?

- What is done in 2004 will likely fix your options for the next few years
- There are many Protocols issues that will be addressed by DSRWG this year that will affect whether your load is suitable for other opportunities
- If you have a stake, you cannot afford not to play
- The only thing you need do to participate is attend the DSWG meetings

1. Enroll in the program (contact a CSP or obtain PJM membership)
2. Select a program (Emergency or Economic)
3. Obtain a free eData account
4. Dial in or attend the monthly working group meetings.
5. Send all requests to LoadResponse@pjm.com
6. Detailed information about PJM's demand-response program is available at PJM's Web site: www.pjm.com > Services > Demand Response Program.